



BLUE ROCK
ENVIRONMENTAL, INC.

FILE COPY

Mr. Robert Stone
Hazardous Materials Specialist
Humboldt County Health Department
Division of Environmental Health
100 H Street, Suite 100
Eureka, California 95501

November 28, 2005

**Re: Fourth Quarter 2005 Groundwater Monitoring Report
Former Cash Oil Arcata
421 J Street, Arcata, CA
HCDEH LOP No. 12302
Blue Rock Project No. NC-3**

Dear Mr. Stone,

This report presents the results of the fourth quarter 2005 groundwater monitoring activities at 421 J Street, Arcata, Humboldt County, California (site) (Figure 1), and was prepared for Clyde Harvey by Blue Rock Environmental, Inc. (Blue Rock).

Background

Site Description

The former Cash Oil Arcata Service Station is located on the corner of J Street and Samoa Boulevard (State Highway 255) in Arcata, California. The site is located in an area of low topographic relief on the Arcata Bottoms as shown in Figure 1.

The site had one single-story building with two pump islands (removed in 1/04) that were used to dispense unleaded gasoline from two upgraded single walled steel 10,000-gallon underground storage tanks (USTs) and one 10,000-gallon fiberglass UST. The site is served by public utilities for drinking water and sewer disposal. Surrounding property use is a mixture of commercial, industrial, and residential. To the north, the site is bordered by Café Mocha and the Finnish Country Sauna and Hot Tubs. An apartment complex lies adjacent to the western property line. The site is bordered to the south by Samoa Boulevard. Properties on the south side of Samoa Boulevard are primarily industrial including an auto body shop and woodworking shops. J Street borders the eastern property line east. Figure 2 is a site plan showing major features of the site and its surroundings.

Site History

A gas station has occupied this site since approximately 1978. The Cash Oil Company began operating the station in 1989. In 1997, permission was granted by the Humboldt County Division of Environmental Health (HCDEH) to line the existing USTs. During the tank lining process, cathodic protection was installed to protect the single-walled steel tanks and piping. During tank upgrade activities, soil and groundwater samples were collected from two borings (B-1 and B-2) that determined a release of petroleum had occurred from the tank system. Results from this investigation are presented in Clearwater Group's *Initial Subsurface Investigation Workplan*, dated June 18, 1999.

In May 2000, Cash Oil Company sold the property and upgraded UST system to Golden Gate Petroleum of Martinez, California.

In January 2004, Beacom Construction (Beacom) of Fortuna, California, on behalf of Golden Gate Petroleum, removed the (3) 10,000-gallon USTs and associated fuel dispensers from the site.

On March 18, 2004, Beacom installed (2) new 10,000-gallon USTs at the site. During the installation of these USTs monitoring well MW-1 was destroyed.

Site Investigation and Corrective Action History

On December 2, 1999, Clearwater Group (Clearwater) observed Fisch Environmental drill six borings (B-3, B-6, B-7, B-8, B-9 and B-10) to collect soil and grab groundwater samples for laboratory analysis. Two additional borings (B-4 and B-5) were attempted, but encountered refusal at a depth of approximately 1.5 feet below ground surface (bgs). Soil sample results from the completed borings indicated that concentrations of total petroleum hydrocarbons as gasoline (TPHg) and methyl tertiary butyl ether (MTBE) in site soils are located primarily in the vicinity of the southerly pump island and southern margin of the UST excavation. Clearwater submitted results and recommendations in an *Initial Subsurface Investigation Report*, dated February 23, 2000, to the HCDEH. In a letter dated March 28, 2000, the HCDEH concurred with Clearwater's recommendations for further investigation.

On August 31, 2000, Clearwater installed four groundwater monitoring wells (MW-1 through MW-4) and one soil boring (B-11). Results of the investigation were presented in Clearwater's *Subsurface Investigation and First Quarterly Monitoring Report*, dated October 13, 2000. This phase of work included the initiation of quarterly groundwater monitoring.

Clearwater submitted an *Interim Remedial Action Workplan*, dated January 29, 2001, to the HCDEH. This workplan proposes and details the installation one onsite groundwater extraction trench and the installation of downgradient offsite monitoring wells. The HCDEH approved this workplan in a correspondence letter dated February 28, 2001.

On November 8, 2001, Clearwater supervised the installation of three additional monitoring wells south of the property: MW-5, MW-6 and MW-7 (Figure 2). These monitoring wells were placed downgradient in off-site locations to further assess the sorbed and dissolved-phase hydrocarbon contamination associated with the UST release. Borings were advanced to 20 feet bgs and well construction consisted of a screened interval from 3 to 20 feet bgs. Results from this investigation defined the extent of sorbed and dissolved-phase hydrocarbon contaminants associated with the site. A sensitive receptor search completed within a 1,000-foot radius of the site indicated that there is (1) industrial water well, which is located 400 feet northwest and cross-gradient from the site. Results from this investigation are presented in Clearwater's *Additional Assessment and Fourth Quarter 2001 Groundwater Monitoring Report*, dated December 10, 2001.

Clearwater submitted a *Corrective Action Plan (CAP)*, dated May 10, 2002 to the HCDEH. The *CAP* presented a summary of the hydrogeology and contamination. The report evaluated remedial alternatives and concluded that a combination of source soil removal, groundwater extraction from open excavation and enhanced bioremediation using oxygen releasing compounds (ORC) would be the best remedial alternative for the site. An enhanced bioremediation background study was proposed in the *CAP*. Preparation of a *CAP* was requested by the HCDEH in a letter dated March 13, 2002. The *CAP* was approved by the HCDEH in a correspondence letter dated May 21, 2002.

Clearwater submitted a *Remedial Action Plan (RAP)*, dated February 14, 2003 to the HCDEH for review. The *RAP* evaluates results from natural attenuation pilot testing and details the excavation of contaminated soil, excavation dewatering activities and the use of enhanced bioremediation (ORC). These remedial activities were based on working in conjunction with future site renovation activities.

Clearwater submitted a *Report of Waste Discharge (ROWD)*, dated May 30, 2003 to the North Coast Region Water Quality Control Board (NCRWQCB) for review. The *ROWD* details the subsurface placement of oxygen releasing compounds (ORC) and complies with waste discharge requirements. The NCRWQCB concurred with the *ROWD* in a letter dated January 5, 2004.

On December 24, 2003, there was an unauthorized release of petroleum hydrocarbons at the site near the dispenser island and monitoring well MW-1. A report of this release is on file at the HCDEH CUPA Department. The HCDEH responded to this release by issuing Golden Gate Petroleum a "Notice of Responsibility" letter dated February 19, 2004.

In January of 2004, Clearwater supervised Felt Mountain Construction of Corning, California excavate 2,332 tons of petroleum contaminated soil and pump approximately 13,000 gallons of contaminated groundwater from the vicinity of the former UST fuel system. The remedial soil excavation removed approximately 824 pounds of hydrocarbons from the site. Clearwater mixed approximately 1,020 pounds of ORC into the excavation backfill. Monitoring well MW-3 was destroyed during remedial excavation activities. Remedial activities are presented in Clearwater's *Remedial Report of Findings*, dated February 10, 2004. The HCDEH concurred with Clearwater's recommendations in a letter dated March 8, 2004.

On March 18, 2004, Beacom pumped approximately 10,000 gallons of groundwater from a UST installation excavation proximal to MW-1. On March 29 and 30, 2004, Blue Rock discharged approximately 10,000 gallons of groundwater under permit that contained acceptable levels of MTBE into the City of Arcata's sewer system. Remedial activities are presented in Blue Rock's *First Quarter 2004 Groundwater Monitoring Report*, dated April 5, 2004.

Field and Laboratory Activities

Groundwater Monitoring Activities

On November 4, 2005, all five wells (MW-2, MW-4, MW-5, MW-6, and MW-7) were monitored.

Prior to sampling, an electronic water level indicator was used to gauge depth to water in each well, accurate to within ± 0.01 -foot. All wells were checked for the presence of light non-aqueous phase liquid (LNAPL) petroleum prior to purging. No measurable thicknesses of LNAPL were observed on groundwater in any of the wells.

In preparation for sampling, the wells were purged of groundwater until sampling parameters (temperature, pH, and conductivity) stabilized. Dissolved oxygen measurements were collected to monitor the effectiveness of the dissolved-phase hydrocarbon cleanup.

Following recovery of water levels to at least approximately 80% of their static levels, groundwater samples were collected from the wells using disposable polyethylene bailers and transferred to laboratory supplied containers. Sample containers were labeled, documented on a chain-of-custody form, and placed on ice in a cooler for transport to the project laboratory.

Purging instruments were cleaned between use by an Alconox[®] wash followed by double rinse in clean tap water to prevent cross-contamination. Purge and rinse water was stored on-site in labeled 55-gallon drums pending future removal and disposal.

Groundwater monitoring and well purging information is presented on Gauge Data/Purge Calculations and Purge Data sheets (attached).

Groundwater Sample Analyses

Groundwater samples were analyzed by Kiff Analytical LLC (Kiff), a DHS-certified laboratory, located in Davis, California, for the following analytes:

- TPHg, BTEX, and MTBE by EPA Method 5030/8260B.

Groundwater Monitoring Results

Groundwater Flow Direction and Gradient

Static groundwater in the wells was present beneath the site at depths ranging from approximately 4.01 (MW-2) to 5.74 (MW-4) feet bgs. Gauging data, combined with well elevation data, were used to calculate groundwater elevation, and to generate a groundwater elevation and gradient map. The groundwater flow direction was calculated to be toward the south at a gradient of 0.011 ft/ft (Figure 3). The groundwater gradient and flow direction are consistent with previous measurements.

Groundwater Contaminant Analytical Results

LNAPL:	None
TPHg concentration:	<50 µg/L (All Wells)
Benzene concentration:	<0.50 µg/L (All wells)
MTBE Concentration:	<0.50 µg/L (MW-4, MW-5, MW-7) to 360 µg/L (MW-2)
Dissolved Oxygen:	1.34 mg/L (MW-2), 0.89 mg/L (MW-4), 1.20 mg/L (MW-6)

Groundwater sample analytical results are shown graphically on Figure 4, and cumulative groundwater sample analytical results are summarized in Table 1. Well construction information is summarized in Table 2. Copies of the laboratory report and chain-of-custody form are attached.

Remarks

Groundwater sample analytical results have been decreasing since remedial soil excavation activities were performed in January 2004.

Trend Evaluation for Groundwater Contaminant Levels and Distribution

Trend Evaluation of Dissolved-Phase Contaminant Concentrations

In order to evaluate the rate of attenuation and when contaminants of concern will reach NCRWQCB clean-up Goals, concentrations of contaminants at MW-2, located immediately downgradient of the excavation, were plotted against time since the remedial excavation activities. Also, in order to further evaluate potential natural attenuation that has been ongoing since the release, concentrations of contaminants in MW-1 were plotted against time until the well was removed for installation of new USTs in March 2004. Please refer to Charts 1 and 2. These data were fit with trend lines and associated equations in the method shown in Buscheck, O'Reilly, and Nelson 1993:

$$C(t) = C_0 e^{-(kt)}$$

Where,

$C(t)$ is concentration as a function of time (t)

C_0 = is concentration as $t = 0$

k = is the decay rate (t^{-1})

The following table summarizes the results:

Well	TPHg Decay Rate (day ⁻¹)	Estimated Year Clean-up Goal Met	MTBE Decay Rate (day ⁻¹)	Estimated Year Clean-up Goal Met
MW-1	NA	Already Met	-0.0023	~2005
MW-2	-0.0052	Already Met	-0.0029*	~2010

Notes:

R^2 value for equations are >0.75 unless otherwise noted. R^2 values >0.75 are generally accepted as a "good fit" between data set and fitted line/equation.

NA = not applicable

* = R^2 value = 0.68. Although the equation producing the decay rate is <0.75 , qualitative inspection of the plot indicates concentrations are decreasing and the R^2 value is not substantially below the benchmark of 0.75.

Trend Evaluation of Dissolved-Phase Contaminant Distribution

The extent of the dissolved-phase contaminant plume associated with the site was examined over the life of the project. The dissolved-phase plume appears to be stable, as no significant levels of contamination have been detected in downgradient delineation wells (MW-6 and MW-7) since the wells were installed nearly five years ago.

Summary

The dissolved-phase plume is stable and levels are decreasing. The dissolved-phase hydrocarbon concentrations at the site appear to be attenuating at substantial rates, both before and after the remedial excavation of 2,300 tons of impacted soil. The footprint of the plume has been stable for the at least the last five years, and, with the remedial excavation in 2004, it is expected that it will continue to decline. Current concentration trend analysis indicates that contaminants of concern, not already below clean-up goals, will reach clean-up goals within approximately five years by natural attenuation.

Project Status

- The site is currently being monitored on a quarterly basis per the HCDEH directives. The next quarterly sampling event is scheduled for February 2006. Groundwater samples will be analyzed for TPHg, BTEX, and MTBE by EPA Method 8260B.

Project Recommendations

- Based on the attached first-order contaminant decay rates, Blue Rock recommends discontinuing groundwater monitoring and prepare a closure summary for the site.

References

Buscheck, T.E., O'Reilly, K.T., and Nelson, S.N. 1993. *Evaluation of Intrinsic Bioremediation at Field Sites*. Proceedings of the Conference of Petroleum Hydrocarbons and Organic Chemicals in Ground Water, National Groundwater Association/API, Houston, TX. November 10-12.

Certification

This report was prepared under the supervision of a California Professional Geologist at Blue Rock. All statements, conclusions, and recommendations are based upon published results from past consultants, field observations by Blue Rock, and analyses performed by a state-certified laboratory as they relate to the time, location, and depth of points sampled by Blue Rock. Interpretation of data, including spatial distribution and temporal trends, are based on commonly used geologic and scientific principles. It is possible that interpretations, conclusions, and recommendations presented in this report may change, as additional data become available and/or regulations change.

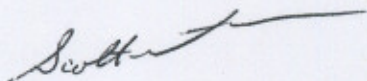
Information and interpretation presented herein are for the sole use of the client and regulating agency. The information and interpretation contained in this document should not be relied upon by a third party.

The service performed by Blue Rock has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

If you have any questions regarding this project, please contact us at (707) 441-1934.

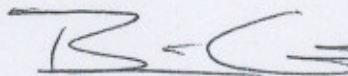
Sincerely,
Blue Rock Environmental, Inc.

Prepared by:

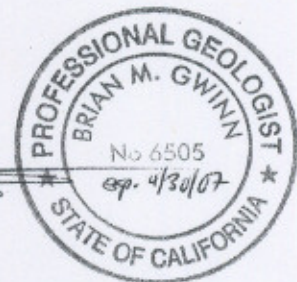


Scott Ferriman
Project Scientist

Reviewed by:



Brian Gwinn, PG
Principal Geologist



Attachments:

- Table 1: Groundwater Elevations and Analytical Data
- Table 2: Well Construction Details
- Figure 1: Site location Map
- Figure 2: Site Plan
- Figure 3: Groundwater Elevations and Gradient Map – 11/4/05
- Figure 4: Dissolved-Phase MTBE Distribution Map – 11/4/05
- First-Order Contaminant Decay Rates
- Blue Rock Gauge/Purge Calculations and Well Purging Data field sheets
- Laboratory Analytical Report and Chain-of-Custody Form for Monitoring Well Samples

Distribution:

Mr. Clyde Harvey, 1785 Fort Douglas Circle, Salt Lake City, UT 84103

Mr. Dennis O'Keefe, Golden Gate Petroleum, 501 Shell Ave, Martinez, CA 94553

Table 1
GROUNDWATER ELEVATIONS
AND ANALYTICAL DATA
Former Cash Oil Arcata
421 J Street
Arcata, California
Blue Rock Project No. NC-003

Well Name	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DO (mg/L)
<i>Grab Groundwater Samples</i>																		
B-1	5/7/97	---	---	0.00	---	9,900	880	52	650	690	100,000	---	---	---	---	---	---	---
B-2	5/7/97	---	---	0.00	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<1	<1	<1	---	---	---
B-6	12/2/99	---	---	0.00	---	550	0.84	0.52	<0.5	<0.5	190	<10	<1	<1	11	---	---	---
B-7	12/2/99	---	---	0.00	---	<250	<1	<1	<1	<1	1,200	<50	<2.5	<2.5	13	---	---	---
B-8	12/2/99	---	---	0.00	---	<50	<0.5	<0.5	<0.5	<0.5	3.3	<10	<1	<1	<1	---	---	---
B-9	12/2/99	---	---	0.00	---	2,600	39	<10	<10	<10	12,000	1,200	<25	<25	220	---	---	---
B-10	12/2/99	---	---	0.00	---	2,600	<10	<10	<10	<10	13,000	780	<25	<25	380	---	---	---
B-11	8/31/00	---	---	0.00	---	54	<0.5	<0.5	<0.5	1.3	340	<5	<0.5	<0.5	4.9	<100	<10	---
<i>Monitoring Well Groundwater Samples</i>																		
MW-1	9/11/00	98.70	6.11	0.00	92.59	<50	<0.3	<0.3	<0.3	<0.6	28.2	<500	<0.5	<0.5	<0.5	---	---	---
	10/16/00	98.70	6.11	0.00	92.59	---	---	---	---	---	---	---	---	---	---	---	---	---
Screen	11/16/00	98.70	4.73	0.00	93.97	---	---	---	---	---	---	---	---	---	---	---	---	---
3'-20'	12/12/00	98.70	4.60	0.00	94.10	<50	<0.3	<0.3	<0.3	<0.6	87	<500	<0.5	<0.5	22	---	---	---
	1/22/01	98.70	4.99	0.00	93.71	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/16/01	98.70	4.70	0.00	94.00	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/8/01	98.70	4.53	0.00	94.17	120	<0.5	<0.5	<0.5	44	42	<5	<0.5	<0.5	9	<50	<5	---
	6/6/01	98.70	5.51	0.00	93.19	<50	<0.5	<0.5	<0.5	<0.5	37	8.7	<0.5	<0.5	2.5	<200	<5	---
	9/4/01	98.70	6.37	0.00	92.33	<50	<0.5	<0.5	<0.5	<0.5	61	<5	<0.5	<0.5	2.3	---	---	---
	11/16/01	12.81	4.18	0.00	8.63	<50	<0.5	<0.5	<0.5	<0.5	15	<5	<0.5	<0.5	1.8	<100	<5	---
	2/8/02	12.81	3.98	0.00	8.83	<50	<0.5	<0.5	<0.5	<0.5	40	9.4	<0.5	<0.5	3.4	---	---	---
	5/3/02	12.81	4.53	0.00	8.28	<50	<0.5	<0.5	<0.5	<0.5	11	8.8	<0.5	<0.5	1.1	---	---	---
	8/29/02	16.19	6.26	0.00	9.93	<50	<0.5	<0.5	<0.5	<0.5	17	16	<0.5	<0.5	1.4	---	---	---
	11/14/02	16.19	5.95	0.00	10.24	<50	<0.5	<0.5	<0.5	<0.5	11	<5	<0.5	<0.5	1.2	---	---	---
	2/11/03	16.19	4.54	0.00	11.65	<50	<0.5	<0.5	<0.5	<0.5	8.2	10	<0.5	<0.5	0.9	---	---	---
	5/7/03	16.19	4.07	0.00	12.12	<50	<0.5	<0.5	<0.5	<0.5	9.1	13	<0.5	<0.5	0.76	---	---	---
	8/4/03	16.19	5.80	0.00	10.39	<50	<0.5	<0.5	<0.5	<0.5	6.4	10	<0.5	<0.5	0.81	---	---	---
	11/3/03	16.19	6.54	0.00	9.65	<50	<0.5	<0.5	<0.5	<0.5	8.3	<5	<0.5	<0.5	0.72	---	---	---
	3/8/04	16.19	4.04	0.00	12.15	<50	<0.5	<0.5	<0.5	<0.5	20	<5	<0.5	<0.5	<0.5	---	---	0.25
3/18/04	MW-1 was destroyed during new UST system installation activities.																	

Table 1
GROUNDWATER ELEVATIONS
AND ANALYTICAL DATA
Former Cash Oil Arcata
421 J Street
Arcata, California
Blue Rock Project No. NC-003

Well Name	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DO (mg/L)
MW-2	9/11/00	98.10	5.19	0.00	92.91	1,120	<0.3	<0.3	<0.3	<0.6	3,130	<500	<0.5	<0.5	40.3	---	---	---
	10/16/00	98.10	5.21	0.00	92.89	---	---	---	---	---	---	---	---	---	---	---	---	---
Screen	11/16/00	98.10	3.87	0.00	94.23	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/12/00	98.10	4.88	0.00	93.22	423	<0.3	<0.3	<0.3	<0.6	2,020	<500	<0.5	<0.5	<0.5	---	---	---
3'-20'	1/22/01	98.10	4.21	0.00	93.89	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/16/01	98.10	4.01	0.00	94.09	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/8/01	98.10	3.92	0.00	94.18	<200	<2	<2	<2	<2	1,400	<20	<2	<2	18	<500	<20	---
	6/6/01	98.10	4.74	0.00	93.36	<500	<5	<5	<5	<5	1,200	<50	<5	<5	20	6,000	<50	---
	9/4/01	98.10	5.64	0.00	92.46	<50	<0.5	<0.5	<0.5	<0.5	1,100	100	<0.5	<0.5	17	---	---	---
	11/16/01	12.23	3.85	0.00	8.38	<100	<1	<1	<1	<1	710	18	<1	<1	12	<2,000	<10	---
	2/8/02	12.23	3.46	0.00	8.77	1,300	19	<10	<10	<10	3,600	140	<10	<10	100	---	---	---
	5/3/02	12.23	3.93	0.00	8.30	<1,000	<10	<10	<10	<10	4,300	250	<10	<10	150	---	---	---
	8/29/02	15.61	5.55	0.00	10.06	<1,000	<10	<10	<10	<10	3,100	<100	<10	<10	87	---	---	---
	11/14/02	15.61	5.24	0.00	10.37	220	<1	<1	<1	<1	2,200	16	<1	<1	67	---	---	---
	2/11/03	15.61	3.97	0.00	11.64	<1,000	11	<10	<10	<10	4,400	170	<10	<10	160	---	---	---
	5/7/03	15.61	3.53	0.00	12.08	<1,000	<10	<10	<10	<10	4,200	210	<10	<10	170	---	---	---
	8/4/03	15.61	5.05	0.00	10.56	<500	<5	<5	<5	<5	2,100	<50	<5	<5	64	---	---	---
	11/3/03	15.61	6.02	0.00	9.59	<500	<5	<5	<5	<5	1,800	<50	<5	<5	58	---	---	---
	3/8/04	15.61	3.87	0.00	11.74	<1,000	<10	<10	<10	<10	4,200	150	<10	<10	150	---	---	0.52
	5/17/04	15.61	4.62	0.00	10.99	<1,000	<10	<10	<10	<20	940	<100	<10	<10	34	---	---	0.76
	8/2/04	15.61	5.31	0.00	10.30	<200	<2	<2	<2	<2	1,000	---	---	---	---	---	---	1.53
	11/1/04	15.61	4.17	0.00	11.44	<200	<1.5	<1.5	<1.5	<1.5	700	---	---	---	---	---	---	1.19
	2/3/05	15.61	3.78	0.00	11.83	<200	<1.5	<1.5	<1.5	<1.5	1,100	---	---	---	---	---	---	1.90
	5/2/05	15.61	4.10	0.00	11.51	<150	<1.5	<1.5	<1.5	<1.5	820	---	---	---	---	---	---	0.57
	8/3/05	15.61	4.78	0.00	10.83	<50	<0.5	<0.5	<0.5	<0.5	370	---	---	---	---	---	---	0.85
	11/4/05	15.61	4.01	0.00	11.60	<50	<0.5	<0.5	<0.5	<0.5	360	---	---	---	---	---	---	1.34
MW-3	9/11/00	99.58	5.39	0.00	94.19	6,390	186	5	10.4	10.7	12,500	<500	<0.5	<0.5	1,150	---	---	---
	10/16/00	99.58	6.36	0.00	93.22	---	---	---	---	---	---	---	---	---	---	---	---	---
Screen	11/16/00	99.58	4.84	0.00	94.74	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/12/00	99.58	4.76	0.00	94.82	29,200	499	<150	<150	<300	41,100	<250,000	<250	<250	2,280	---	---	---
3'-20'	1/22/01	99.58	5.27	0.00	94.31	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/16/01	99.58	4.91	0.00	94.67	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/8/01	99.58	4.79	0.00	94.79	3,100	230	130	35	62	6,900	2,100	<10	<10	290	<10,000	<200	---
	6/6/01	99.58	5.93	0.00	93.65	<5,000	190	<25	<25	<25	16,000	5,000	<25	<25	530	<10,000	<1,000	---
	9/4/01	99.58	6.84	0.00	92.74	4,700	230	100	25	88	16,000	7,000	<20	<20	990	---	---	---
	11/16/01	13.70	4.55	0.00	9.15	10,000	720	590	250	970	22,000	4,200	<50	<50	1,200	<120,000	<500	---
	2/8/02	13.70	3.90	0.00	9.80	4,200	170	26	54	75	6,000	920	<20	<20	260	---	---	---
	5/3/02	13.70	4.62	0.00	9.08	2,700	110	<20	26	22	9,500	3,400	<20	<20	790	---	---	---

Table 1
GROUNDWATER ELEVATIONS
AND ANALYTICAL DATA
Former Cash Oil Arcata
421 J Street
Arcata, California
Blue Rock Project No. NC-003

Well Name	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DO (mg/L)
MW-3	8/29/02	17.08	6.74	0.00	10.34	1,800	80	<10	<10	<10	4,700	1,200	<10	<10	540	---	---	---
	11/14/02	17.08	6.38	0.00	10.70	4,300	120	<20	<20	<20	8,600	1,800	<20	<20	1,400	---	---	---
Screen	2/11/03	17.08	4.73	0.00	12.35	4,500	200	<20	27	<20	11,000	2,800	<20	<20	760	---	---	---
3'-20'	5/7/03	17.08	4.15	0.00	12.93	2,800	120	<20	26	<20	5,700	1,200	<20	<20	430	---	---	---
	8/4/03	17.08	6.25	0.00	10.83	1,900	79	<10	<10	<10	5,500	1,500	<10	<10	420	---	---	---
	11/3/03	17.08	6.88	0.00	10.20	1,900	75	<10	<10	<10	4,600	1,500	<10	<10	380	---	---	---
	1/20/04	Removed during remedial soil excavation activities																
MW-4	9/11/00	100.50	7.07	0.00	93.43	<50	0.4	<0.3	<0.3	<0.6	<10	<500	<0.5	<0.5	3.7	---	---	---
	10/16/00	100.50	7.97	0.00	92.53	---	---	---	---	---	---	---	---	---	---	---	---	---
Screen	11/16/00	100.50	5.45	0.00	95.05	---	---	---	---	---	---	---	---	---	---	---	---	---
3'-20'	12/12/00	100.50	6.08	0.00	94.42	<50	<0.3	<0.3	<0.3	<0.6	2	<500	<0.5	<0.5	<0.5	---	---	---
	1/22/01	100.50	5.79	0.00	94.71	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/16/01	100.50	5.29	0.00	95.21	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/8/01	100.50	5.22	0.00	95.28	<50	<0.5	<0.5	<0.5	<0.5	0.94	<5	<0.5	<0.5	<0.5	<50	<5	---
	6/6/01	100.50	6.52	0.00	93.98	<50	<0.5	<0.5	<0.5	<0.5	0.57	<5	<0.5	<0.5	<0.5	<50	<5	---
	9/4/01	100.50	7.56	0.00	92.94	<50	<0.5	<0.5	<0.5	<0.5	0.78	<5	<0.5	<0.5	<0.5	---	---	---
	11/16/01	14.59	4.96	0.00	9.63	<50	<0.5	<0.5	<0.5	<0.5	0.58	<5	<0.5	<0.5	<0.5	<50	<5	---
	2/8/02	14.59	4.74	0.00	9.85	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	5/3/02	14.59	5.04	0.00	9.55	<50	<0.5	<0.5	<0.5	<0.5	1.3	<5	<0.5	<0.5	<0.5	---	---	---
	8/29/02	17.97	7.42	0.00	10.55	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	11/14/02	17.97	7.02	0.00	10.95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	2/11/03	17.97	5.11	0.00	12.86	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	5/7/03	17.97	4.53	0.00	13.44	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	8/4/03	17.97	6.94	0.00	11.03	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	11/3/03	17.97	7.61	0.00	10.36	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	3/8/04	17.97	5.04	0.00	12.93	<50	<0.5	<0.5	<0.5	<0.5	3.9	<5	<0.5	<0.5	<0.5	---	---	0.12
	5/17/04	17.97	6.73	0.00	11.24	<50	<0.5	<0.5	<0.5	<0.5	5.2	<5	<0.5	<0.5	<0.5	---	---	0.84
	8/2/04	17.97	6.89	0.00	11.08	<50	<0.5	<0.5	<0.5	<0.5	43	---	---	---	---	---	---	1.99
	11/1/04	17.97	5.66	0.00	12.31	<50	<0.5	<0.5	<0.5	<0.5	2.8	---	---	---	---	---	---	1.38
	2/3/05	17.97	5.01	0.00	12.96	<50	<0.5	<0.5	<0.5	<0.5	1.0	---	---	---	---	---	---	1.92
	5/2/05	17.97	5.59	0.00	12.38	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	0.52
	8/3/05	17.97	6.52	0.00	11.45	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	0.88
	11/4/05	17.97	5.74	0.00	12.23	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	0.89
MW-5	11/16/01	12.27	5.18	0.00	7.09	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<50	<5	---
	2/8/02	12.27	4.39	0.00	7.88	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
Screen	5/3/02	12.27	4.56	0.00	7.71	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
3'-20'	8/29/02	15.64	5.97	0.00	9.67	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---

Table 1
GROUNDWATER ELEVATIONS
AND ANALYTICAL DATA
Former Cash Oil Arcata
421 J Street
Arcata, California
Blue Rock Project No. NC-003

Well Name	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DO (mg/L)
MW-5 Screen 3'-20'	11/14/02	15.64	5.80	0.00	9.84	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	2/11/03	15.64	4.59	0.00	11.05	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	5/7/03	15.64	4.33	0.00	11.31	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	8/4/03	15.64	5.48	0.00	10.16	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	11/3/03	15.64	6.57	0.00	9.07	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	3/8/04	15.64	4.49	0.00	11.15	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	0.38
	5/17/04	15.64	4.98	0.00	10.66	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	0.78
	8/2/04	15.64	5.69	0.00	9.95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	1.89
	11/1/04	15.64	4.86	0.00	10.78	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	1.36
	2/3/05	15.64	4.60	0.00	11.04	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	2.29
	5/2/05	15.64	4.64	0.00	11.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	0.67
	8/3/05	15.64	5.22	0.00	10.42	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	1.14
	11/4/05	15.64	4.93	0.00	10.71	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	0.79
MW-6 Screen 3'-20'	11/16/01	11.41	4.51	0.00	6.90	<50	<0.5	<0.5	<0.5	<0.5	0.9	<5	<0.5	<0.5	<0.5	<50	<5	---
	2/8/02	11.41	4.15	0.00	7.26	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	5/3/02	11.41	4.13	0.00	7.28	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	8/29/02	14.78	5.36	0.00	9.42	<50	<0.5	<0.5	<0.5	<0.5	0.68	<5	<0.5	<0.5	<0.5	---	---	---
	11/14/02	14.78	5.19	0.00	9.59	<50	<0.5	<0.5	<0.5	<0.5	1.0	<5	<0.5	<0.5	<0.5	---	---	---
	2/11/03	14.78	4.16	0.00	10.62	<50	<0.5	<0.5	<0.5	<0.5	0.8	<5	<0.5	<0.5	<0.5	---	---	---
	5/7/03	14.78	3.90	0.00	10.88	<50	<0.5	<0.5	<0.5	<0.5	0.6	<5	<0.5	<0.5	<0.5	---	---	---
	8/4/03	14.78	4.90	0.00	9.88	<50	<0.5	<0.5	<0.5	<0.5	0.65	<5	<0.5	<0.5	<0.5	---	---	---
	11/3/03	14.78	6.11	0.00	8.67	<50	<0.5	<0.5	<0.5	<0.5	1.5	<5	<0.5	<0.5	<0.5	---	---	---
	3/8/04	14.78	4.08	0.00	10.70	<50	<0.5	<0.5	<0.5	<0.5	0.51	<5	<0.5	<0.5	<0.5	---	---	0.12
	5/17/04	14.78	4.42	0.00	10.36	<50	<0.5	<0.5	<0.5	<0.5	0.60	<5	<0.5	<0.5	<0.5	---	---	0.80
	8/2/04	14.78	5.07	0.00	9.71	<50	<0.5	<0.5	<0.5	<0.5	0.72	---	---	---	---	---	---	1.73
	11/1/04	14.78	4.32	0.00	10.46	<50	<0.5	<0.5	<0.5	<0.5	2.3	---	---	---	---	---	---	1.23
	2/3/05	14.78	4.15	0.00	10.63	<50	<0.5	<0.5	<0.5	<0.5	0.68	---	---	---	---	---	---	2.34
	5/2/05	14.78	4.19	0.00	10.59	<50	<0.5	<0.5	<0.5	<0.5	0.56	---	---	---	---	---	---	0.61
	8/3/05	14.78	4.60	0.00	10.18	<50	<0.5	<0.5	<0.5	<0.5	0.62	---	---	---	---	---	---	0.49
	11/4/05	14.78	4.34	0.00	10.44	<50	<0.5	<0.5	<0.5	<0.5	1.0	---	---	---	---	---	---	1.20

Table 1
GROUNDWATER ELEVATIONS
AND ANALYTICAL DATA
Former Cash Oil Arcata
421 J Street
Arcata, California
Blue Rock Project No. NC-003

Well Name	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	DO (mg/L)
MW-7 Screen 3'-20'	11/16/01	11.91	5.19	0.00	6.72	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<50	<5	---
	2/8/02	11.91	4.67	0.00	7.24	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	5/3/02	11.91	5.06	0.00	6.85	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	8/29/02	15.28	6.20	0.00	9.08	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	11/14/02	15.28	5.83	0.00	9.45	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	2/11/03	15.28	5.12	0.00	10.16	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	5/7/03	15.28	4.75	0.00	10.53	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	8/4/03	15.28	5.77	0.00	9.51	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	11/3/03	15.28	6.84	0.00	8.44	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---
	3/8/04	15.28	4.96	0.00	10.32	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	0.15
	5/17/04	15.28	5.23	0.00	10.05	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	0.69
	8/2/04	15.28	6.06	0.00	9.22	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	1.64
	11/1/04	15.28	5.26	0.00	10.02	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	1.28
	2/3/05	15.28	4.97	0.00	10.31	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	2.31
	5/2/05	15.28	5.01	0.00	10.27	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	0.58
	8/3/05	15.28	5.50	0.00	9.78	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	0.55
	11/4/05	15.28	5.07	0.00	10.21	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	0.49
MCL						---	1	150	300	1,750	13	---						
Taste & odor threshold						5	---	42	29	17	---	---						
NCRWQCB Cleanup Goals						<50	0.5	42	29	17	5	---						

Notes :

TOC: Top of well casing surveyed to established benchmark.

DTW: Depth to water as referenced to top of casing.

SPH: Separate phase hydrocarbon on top of groundwater.

GWE: Groundwater elevation as referenced to benchmark.

µg/L = micrograms per liter = parts per billion = ppb

MCL: maximum contaminant level, a Federal drinking water standard

<###: Not detected in concentrations exceeding the indicated laboratory detection limit

DO: Dissolved oxygen collected using YSI meter (downhole measurement)

TPHg: Total petroleum hydrocarbons as gasoline by Method 5030/8260B

MTBE: Methyl tertiary butyl ether by Method 8260B

TBA: Tertiary butyl alcohol by Method 8260B

DIPE: Di isopropyl ether by Method 8260B

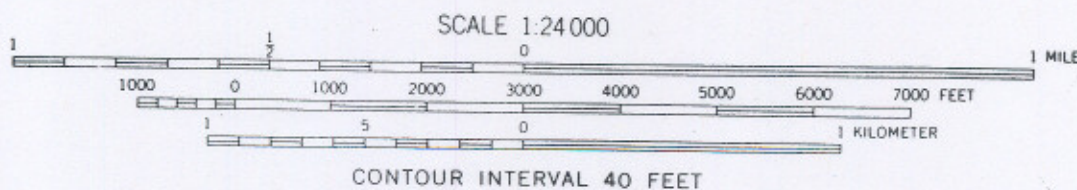
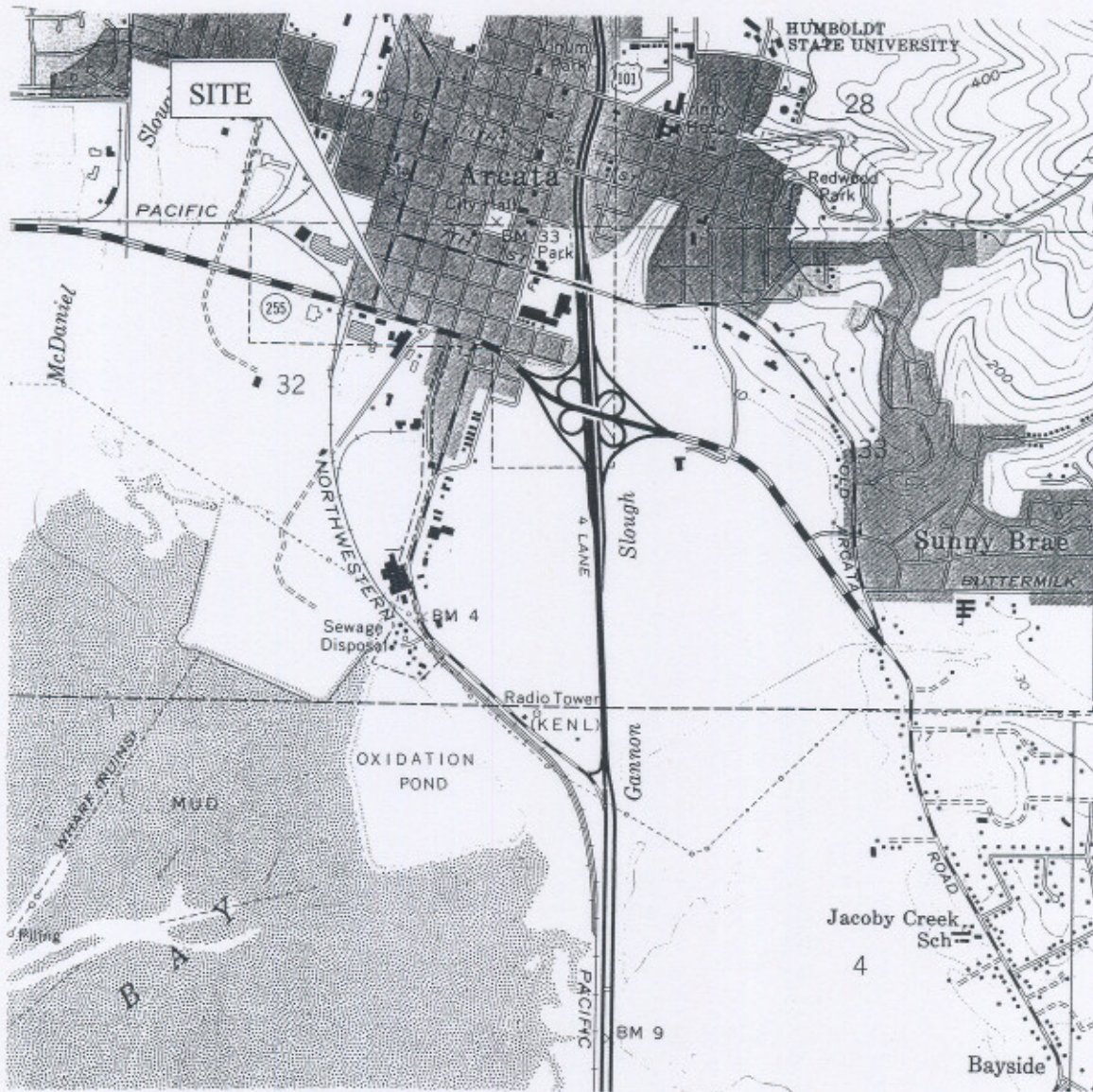
ETBE: Ethyl tertiary butyl ether by Method 8260B

TAME: Tertiary amyl methyl ether by Method 8260B

NCRWQCB: North Coast Region Water Quality Control Board

Table 2
WELL CONSTRUCTION DETAILS
Former Cash Oil Arcata
421 J Street
Arcata, California
Blue Rock Project No. NC-003

Well Identification	Date Installed	Installed by	Casing Diameter (inches)	Total Depth (feet)	Blank Interval (feet)	Screened Interval (feet)	Slot Size (inches)	Filter Pack (feet)	Bentonite Seal (feet)	Cement (feet)
MW-1	8/31/00	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
(MW-1 was destroyed in 3/04 for installation of the new UST system.)										
MW-2	8/31/00	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
MW-3	8/31/00	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
(MW-3 was destroyed in 1/04 for remedial excavation.)										
MW-4	8/31/00	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
MW-5	11/8/01	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
MW-6	11/8/01	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
MW-7	11/8/01	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5



QUADRANGLE LOCATION

MAP SOURCE: USGS Arcata South Quadrangle



Site Location Map

Former Cash Oil Arcata
421 J Street
Arcata, California

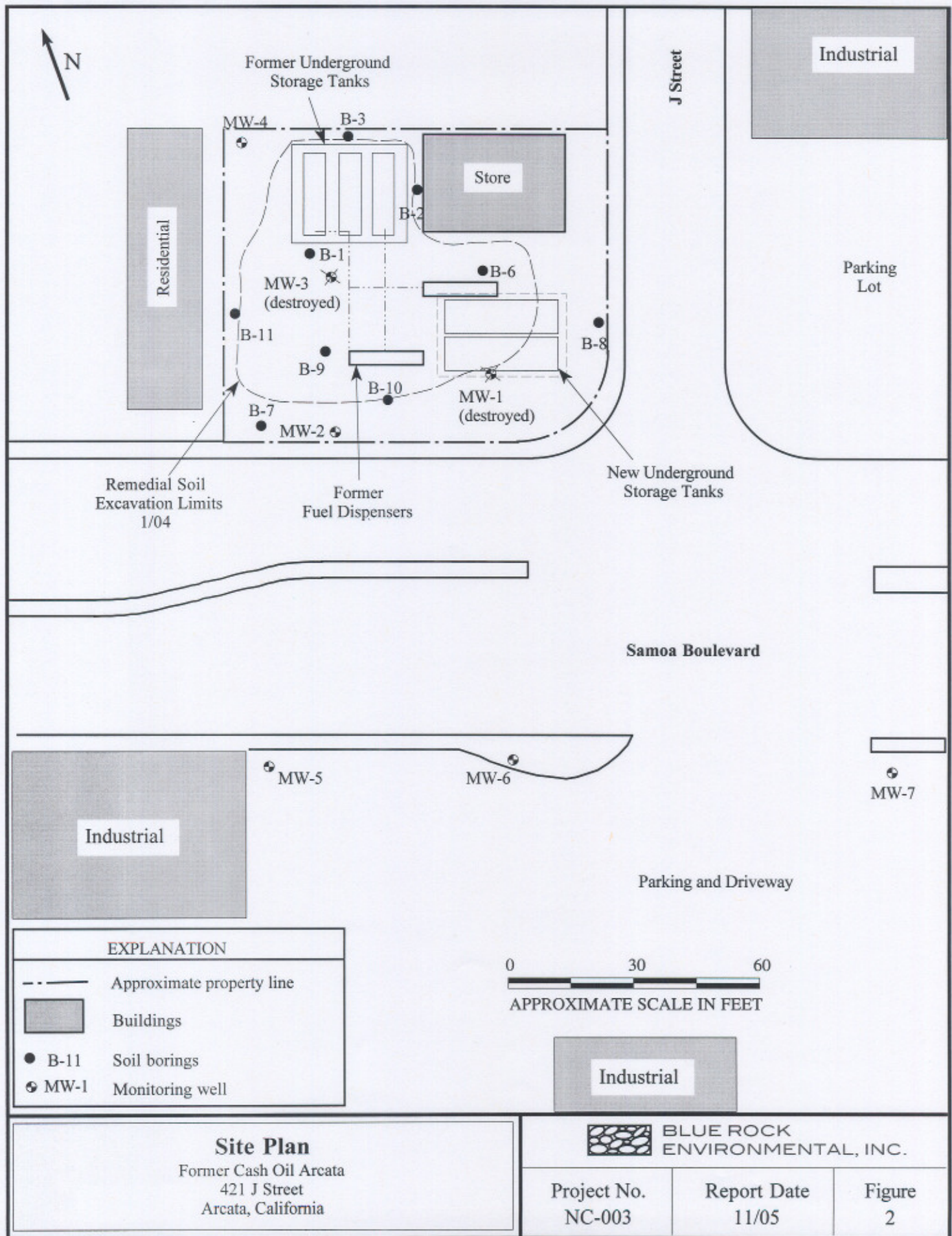


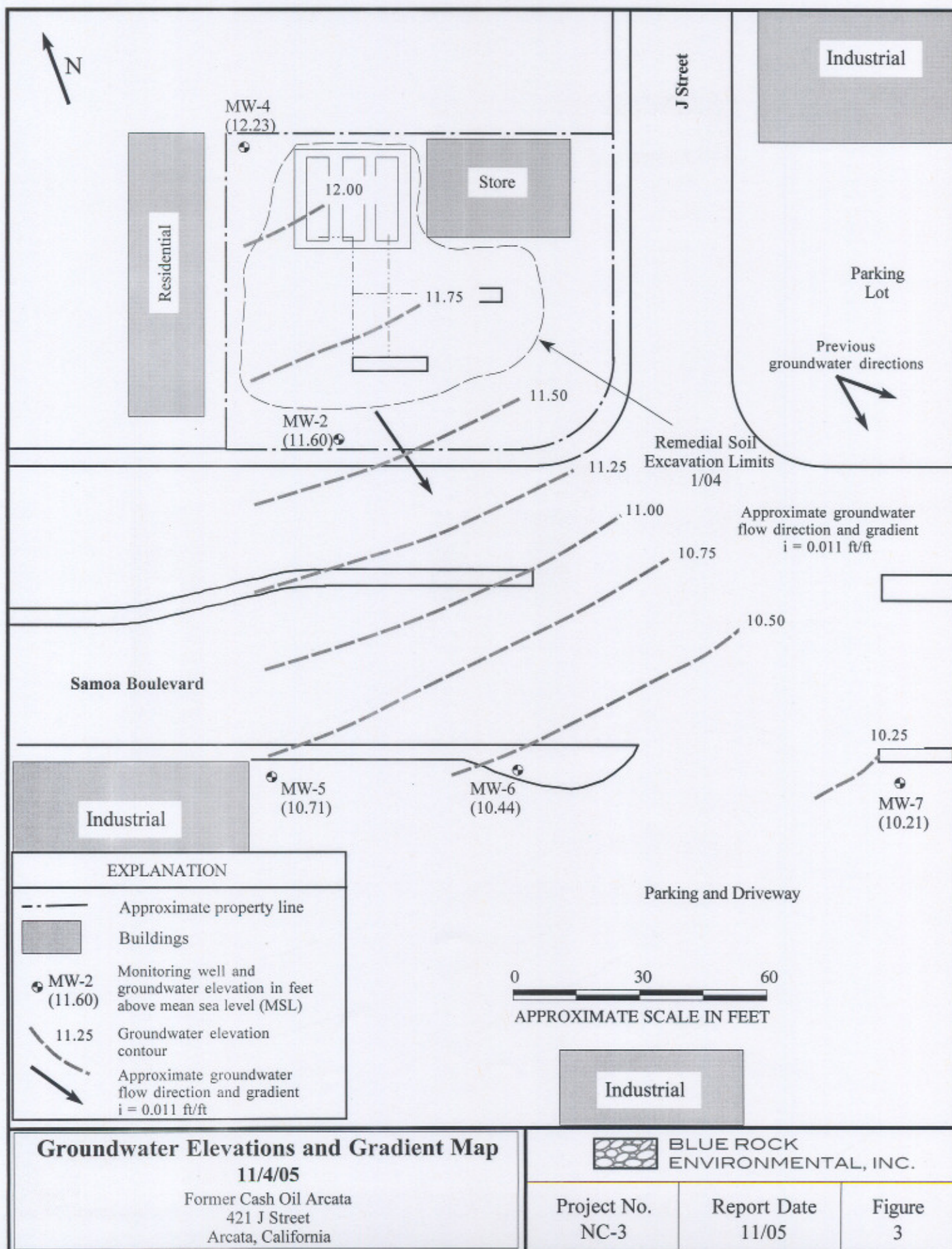
BLUE ROCK
ENVIRONMENTAL, INC.

Project No.
NC-003

Date
4/04

Figure
1





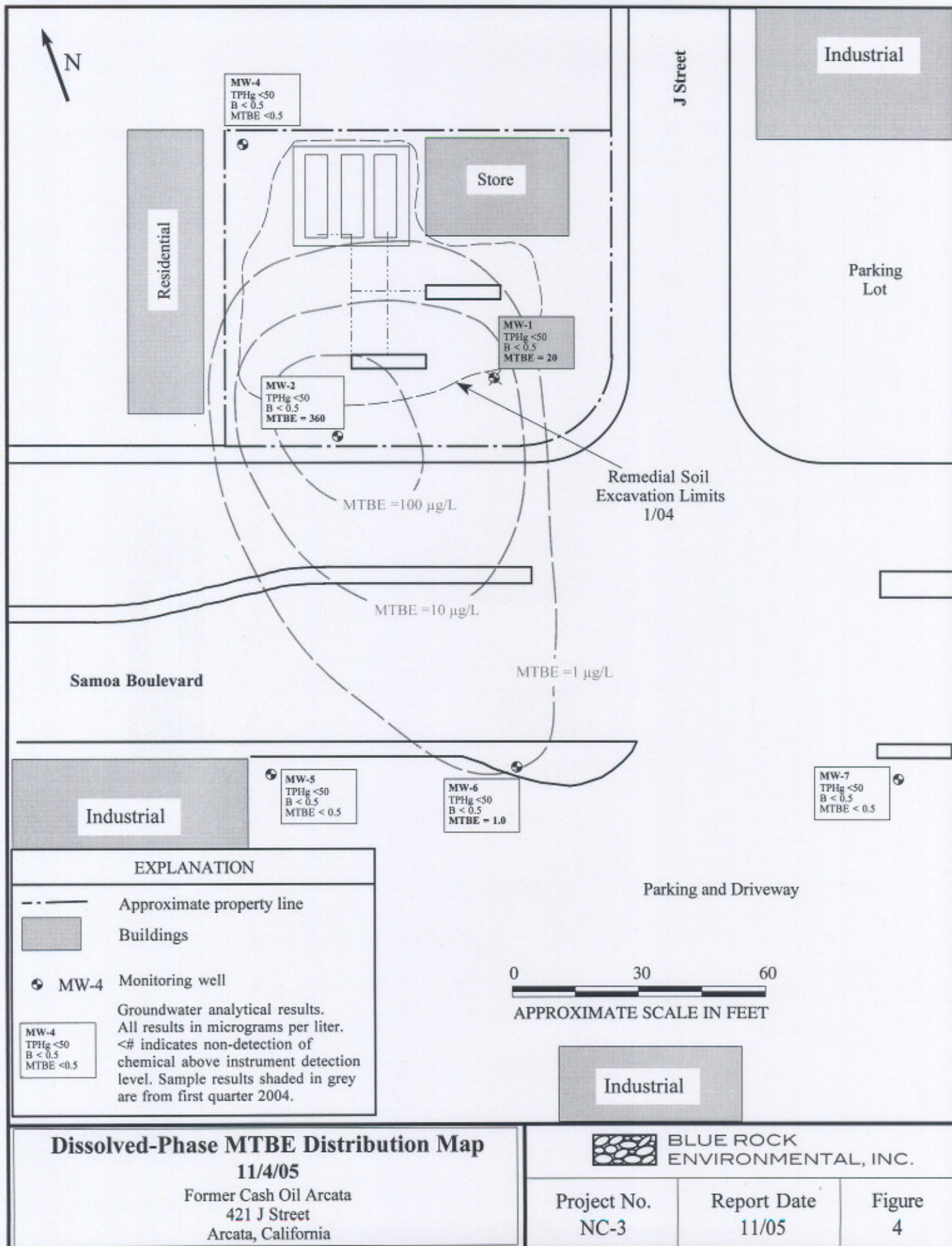


Chart 1
Dissolved-Phase Hydrocarbon Concentrations vs. Time for MW-1
Former Cash Oil Arcata
421 J Street
Arcata, California

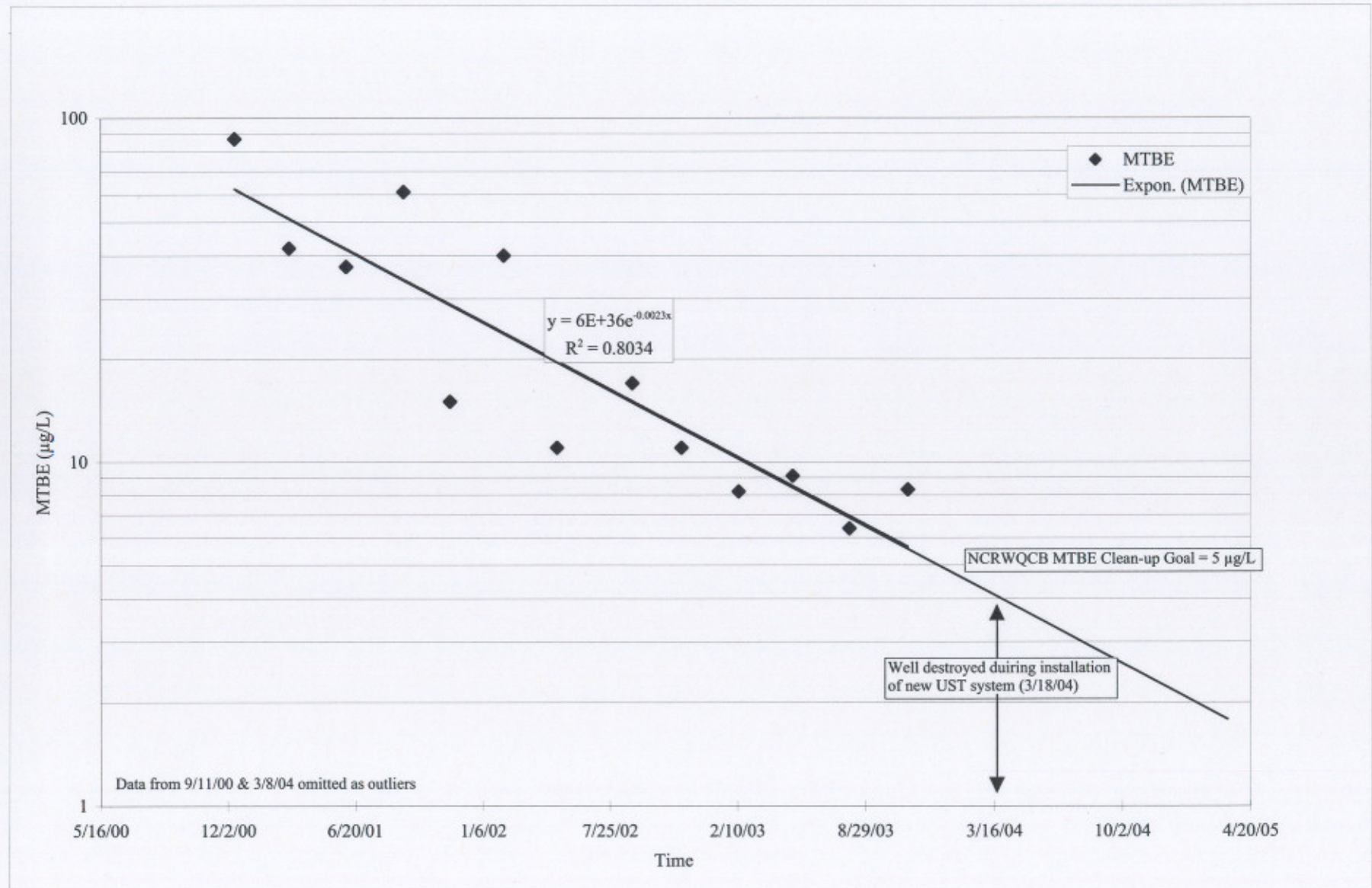
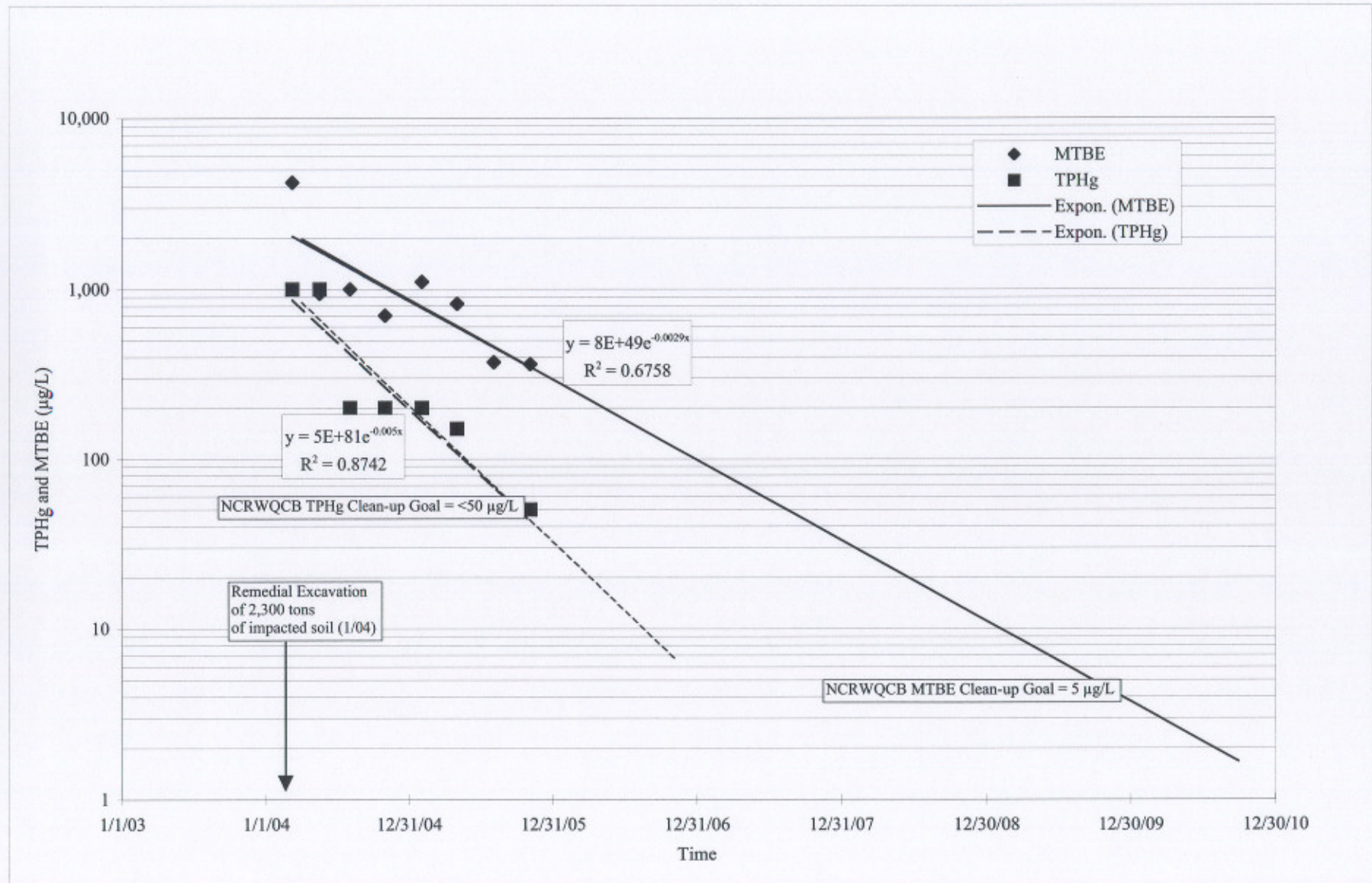


Chart 2
Dissolved-Phase Hydrocarbon Concentrations vs. Time for MW-2
Former Cash Oil Arcata
421 J Street
Arcata, California



GAGING DATA/PURGE CALCULATIONS

Job No.: NC-3 Location: 421 J St. Arcata CA Date: 11/4/05 Tech(s): JL

[illegible]

Explanation:

DIA. = Well Diameter

DTB = Depth to Bottom

DTW = Depth to Water

ST = Saturated Thickness (DTB-DTW)

CV = Casing Volume (ST x cf)

PV = Purge Volume (standard 3 x CV,
well development 10 x CV)

SPH = Thickness of Separate Phase Hydrocarbons

Conversion Factors (cf):

2 in. dia. well cf = 0.16 gal./ft.

4 in. dia. well cf = 0.65 gal./ft.

6 in. dia. well cf = 1.44 gal./ft.



BLUE ROCK
ENVIRONMENTAL, INC.

PURGING DATA

SHEET 1 OF 2

Job No.: NC-3 Location: 421 J St. Arcata Date: 11/4/05 Tech: JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-2			---	---	---	Sample for:
Calc. purge	10:45	0.25	374	65.8	7.06	TPHg TPHd 8260
volume	10:50	2.75	396	67.0	7.44	BTEX MTBE Metals
5.79	10:55	5.80	389	67.1	7.38	Purging Method:
						PVC bailer / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
clear / low / mod. / no sheen / no odor						Dedicated / Disposable bailer

Sample at: 11:00

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-4			---	---	---	Sample for:
Calc. purge	9:25	0.25	429	62.8	8.21	TPHg TPHd 8260
volume	9:30	2.50	459	63.6	8.22	BTEX MTBE Metals
4.89	9:35	4.90	438	63.8	8.26	Purging Method:
						PVC bailer / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
clear / mod. / mod. / no sheen / no odor						Dedicated / Disposable bailer

Sample at: 9:40

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-5			---	---	---	Sample for:
Calc. purge	10:25	0.25	560	61.6	6.14	TPHg TPHd 8260
volume	10:30	1.50	684	62.3	7.17	BTEX MTBE Metals
3.12	10:35	3.15	696	62.5	7.17	Purging Method:
						PVC bailer / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
clear / mod. / mod. / no sheen / no odor						Dedicated / Disposable bailer

Sample at: 10:40

PURGING DATA

SHEET 2 OF 2

Job No.: NC-3 Location: 421 J St. Arcata Date: 11/4/05 Tech: JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-6			---	---	---	Sample for:
Calc. purge	10:05	0.25	818	64.7	6.10	TPHg TPHd 8260
volume	10:10	2.25	870	65.4	8.02	BTEX MTBE Metals
4.80	10:15	4.80	855	65.5	7.18	Purging Method:
						PVC bailer / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
Clear / mod. / mod. / no sheen / no odor						Dedicated / Disposable bailer
						Sample at: 10:20

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-7			---	---	---	Sample for:
Calc. purge	9:45	0.25	497	65.4	5.44	TPHg TPHd 8260
volume	9:50	2.25	527	66.6	5.39	BTEX MTBE Metals
4.86	9:55	4.85	537	67.0	5.29	Purging Method:
						PVC bailer / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
Clear / mod. / mod. / no sheen / no odor						Dedicated / Disposable bailer
						Sample at: 10:00

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
			---	---	---	Sample for:
Calc. purge						TPHg TPHd 8260
volume						BTEX MTBE Metals
						Purging Method:
						PVC bailer / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
						Dedicated / Disposable bailer
						Sample at:



Report Number : 46805

Date : 11/10/2005

Scott Ferriman
Blue Rock Environmental, Inc.
535 3rd Street, Suite 100
Eureka, CA 95501

Subject : 5 Water Samples
Project Name : Cash Oil Arcata
Project Number : NC-3

Dear Mr. Ferriman,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink, appearing to read "Joel Kiff".

Joel Kiff



Report Number : 46805

Date : 11/10/2005

Project Name : **Cash Oil Arcata**

Project Number : **NC-3**

Sample : **MW-2**

Matrix : Water

Lab Number : 46805-01

Sample Date :11/4/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Methyl-t-butyl ether (MTBE)	360	0.50	ug/L	EPA 8260B	11/9/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	11/9/2005
Toluene - d8 (Surr)	99.9		% Recovery	EPA 8260B	11/9/2005
4-Bromofluorobenzene (Surr)	97.8		% Recovery	EPA 8260B	11/9/2005

Sample : **MW-4**

Matrix : Water

Lab Number : 46805-02

Sample Date :11/4/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	11/8/2005
Toluene - d8 (Surr)	98.9		% Recovery	EPA 8260B	11/8/2005
4-Bromofluorobenzene (Surr)	100		% Recovery	EPA 8260B	11/8/2005

Approved By:

Jodi Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800



Report Number : 46805

Date : 11/10/2005

Project Name : **Cash Oil Arcata**

Project Number : **NC-3**

Sample : **MW-5**

Matrix : Water

Lab Number : 46805-03

Sample Date :11/4/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	11/9/2005
Toluene - d8 (Surr)	105		% Recovery	EPA 8260B	11/9/2005
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	11/9/2005

Sample : **MW-6**

Matrix : Water

Lab Number : 46805-04

Sample Date :11/4/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Methyl-t-butyl ether (MTBE)	1.0	0.50	ug/L	EPA 8260B	11/9/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	11/9/2005
Toluene - d8 (Surr)	104		% Recovery	EPA 8260B	11/9/2005
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	11/9/2005

Approved By:

Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800



Report Number : 46805

Date : 11/10/2005

Project Name : **Cash Oil Arcata**

Project Number : **NC-3**

Sample : **MW-7**

Matrix : Water

Lab Number : 46805-05

Sample Date :11/4/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	11/9/2005
Toluene - d8 (Surr)	105		% Recovery	EPA 8260B	11/9/2005
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	11/9/2005

Approved By:

Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

Report Number : 46805

Date : 11/10/2005

QC Report : Method Blank Data

Project Name : **Cash Oil Arcata**

Project Number : **NC-3**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	11/9/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	11/9/2005
Toluene - d8 (Surr)	100		%	EPA 8260B	11/9/2005
4-Bromofluorobenzene (Surr)	98.8		%	EPA 8260B	11/9/2005
Benzene	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	11/8/2005
Toluene - d8 (Surr)	106		%	EPA 8260B	11/8/2005
4-Bromofluorobenzene (Surr)	106		%	EPA 8260B	11/8/2005
Benzene	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	11/8/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	11/8/2005
Toluene - d8 (Surr)	98.6		%	EPA 8260B	11/8/2005
4-Bromofluorobenzene (Surr)	101		%	EPA 8260B	11/8/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
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KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:  Joel Kiff

Report Number : 46805

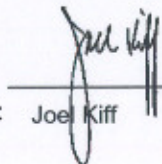
Date : 11/10/2005

QC Report : Matrix Spike/ Matrix Spike DuplicateProject Name : **Cash Oil Arcata**Project Number : **NC-3**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene	46823-05	<0.50	40.0	40.0	40.0	39.9	ug/L	EPA 8260B	11/9/05	100	99.8	0.196	70-130	25
Toluene	46823-05	<0.50	40.0	40.0	39.0	38.1	ug/L	EPA 8260B	11/9/05	97.4	95.3	2.18	70-130	25
Tert-Butanol	46823-05	<5.0	200	200	202	207	ug/L	EPA 8260B	11/9/05	101	103	2.34	70-130	25
Methyl-t-Butyl Ether	46823-05	0.58	40.0	40.0	42.6	42.0	ug/L	EPA 8260B	11/9/05	105	104	1.49	70-130	25
Benzene	46827-04	<0.50	40.0	40.0	40.5	40.0	ug/L	EPA 8260B	11/8/05	101	100	1.29	70-130	25
Toluene	46827-04	<0.50	40.0	40.0	42.1	41.9	ug/L	EPA 8260B	11/8/05	105	105	0.377	70-130	25
Tert-Butanol	46827-04	<5.0	200	200	191	191	ug/L	EPA 8260B	11/8/05	95.6	95.3	0.283	70-130	25
Methyl-t-Butyl Ether	46827-04	<0.50	40.0	40.0	33.0	33.0	ug/L	EPA 8260B	11/8/05	82.5	82.5	0.0470	70-130	25
Benzene	46805-02	<0.50	40.0	40.0	39.5	37.8	ug/L	EPA 8260B	11/8/05	98.8	94.5	4.44	70-130	25
Toluene	46805-02	<0.50	40.0	40.0	39.3	36.8	ug/L	EPA 8260B	11/8/05	98.2	92.0	6.49	70-130	25
Tert-Butanol	46805-02	<5.0	200	200	203	209	ug/L	EPA 8260B	11/8/05	101	104	3.00	70-130	25
Methyl-t-Butyl Ether	46805-02	<0.50	40.0	40.0	39.8	39.0	ug/L	EPA 8260B	11/8/05	99.6	97.5	2.14	70-130	25

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:  Joel Kiff

Report Number : 46805

Date : 11/10/2005

QC Report : Laboratory Control Sample (LCS)

Project Name : **Cash Oil Arcata**

Project Number : **NC-3**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.0	ug/L	EPA 8260B	11/9/05	98.6	70-130
Toluene	40.0	ug/L	EPA 8260B	11/9/05	101	70-130
Tert-Butanol	200	ug/L	EPA 8260B	11/9/05	100	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	11/9/05	110	70-130
Benzene	40.0	ug/L	EPA 8260B	11/8/05	104	70-130
Toluene	40.0	ug/L	EPA 8260B	11/8/05	108	70-130
Tert-Butanol	200	ug/L	EPA 8260B	11/8/05	96.9	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	11/8/05	83.6	70-130
Benzene	40.0	ug/L	EPA 8260B	11/8/05	104	70-130
Toluene	40.0	ug/L	EPA 8260B	11/8/05	103	70-130
Tert-Butanol	200	ug/L	EPA 8260B	11/8/05	106	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	11/8/05	103	70-130

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:

Joel Kiff





2795 2nd Street, Suite 300
Davis, CA 95616
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No.

46805

Page 1 of 1

Project Contact (Hardcopy or PDF To): <i>Scott Ferriman</i>			California EDF Report? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			Chain-of-Custody Record and Analysis Request																									
Company / Address: <i>Blue Rock Env. Inc.</i> <i>535 3rd St. Ste. 100 Eureka CA</i>			Sampling Company Log Code:			Analysis Request															TAT										
Phone #: <i>(707) 441-1934</i>		Fax #: <i>(707) 441-1949</i>		Global ID: <i>T0602300231</i>		<div>MTBE (EPA 8260B) per EPA 8021 level @ 5.0 ppb</div> <div>MTBE (EPA 8260B) @ 0.5 ppb</div> <div>BTEX (EPA 8260B)</div> <div>TPH Gas (EPA 8260B)</div> <div>5 Oxygenates (EPA 8260B)</div> <div>7 Oxygenates (EPA 8260B)</div> <div>Lead Scav. (1.2 DCA & 1.2 EDB-EPA 8260B)</div> <div>Volatile Halocarbons (EPA 8260B)</div> <div>Volatile Organics Full List (EPA 8260B)</div> <div>Volatile Organics (EPA 824.2 Drinking Water)</div> <div>TPH as Diesel (EPA 8015M)</div> <div>TPH as Motor Oil (EPA 8015M)</div> <div>Total Lead (EPA 8010)</div> <div>W.E.T. Lead (STLC)</div>															<input type="checkbox"/> 12 hr										
Project #: <i>NC-3</i>		P.O. #:		EDF Deliverable To (Email Address): <i>scott@bluerockenv.com</i>																	<input type="checkbox"/> 24 hr										
Project Name: <i>Cash Oil Arcata</i>				Sampler Signature: <i>Damee Linderman</i>																	<input type="checkbox"/> 48 hr										
Project Address: <i>421 J St. Arcata, CA</i>																					<input type="checkbox"/> 72 hr										
Sample Designation		Date	Time	40 ml VOA	Sleeve	Poly	Glass	Tedlar	HCl	HNO ₃	None	Water	Soil	Air	MTBE (EPA 8260B) per EPA 8021 level @ 5.0 ppb	MTBE (EPA 8260B) @ 0.5 ppb	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (EPA 8260B)	7 Oxygenates (EPA 8260B)	Lead Scav. (1.2 DCA & 1.2 EDB-EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 824.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	Total Lead (EPA 8010)	W.E.T. Lead (STLC)	<input checked="" type="checkbox"/> 1 wk	For Lab Use Only	
✓ <i>MW-2</i>	<i>11/4/05</i>	<i>11:00</i>	<i>3</i>						<i>X</i>			<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>													<i>X</i>	<i>01</i>
✓ <i>MW-4</i>	<i>↓</i>	<i>9:40</i>	<i>↓</i>						<i>↓</i>			<i>↓</i>			<i>↓</i>	<i>↓</i>	<i>↓</i>													<i>↓</i>	<i>02</i>
✓ <i>MW-5</i>	<i>↓</i>	<i>10:40</i>	<i>↓</i>						<i>↓</i>			<i>↓</i>			<i>↓</i>	<i>↓</i>	<i>↓</i>													<i>↓</i>	<i>03</i>
✓ <i>MW-6</i>	<i>↓</i>	<i>10:20</i>	<i>↓</i>						<i>↓</i>			<i>↓</i>			<i>↓</i>	<i>↓</i>	<i>↓</i>													<i>↓</i>	<i>04</i>
✓ <i>MW-7</i>	<i>↓</i>	<i>10:00</i>	<i>↓</i>						<i>↓</i>			<i>↓</i>			<i>↓</i>	<i>↓</i>	<i>↓</i>													<i>↓</i>	<i>05</i>
Relinquished by: <i>Damee Linderman</i>			Date <i>11/4/05</i>	Time	Received by: <i>Fed Ex</i>			Remarks:																							
Relinquished by:			Date	Time	Received by:			Bill to:																							
Relinquished by:			Date <i>11/05/05</i>	Time <i>1145</i>	Received by Laboratory: <i>[Signature]</i> KIFF Analytical LLC			For Lab Use Only: Sample Receipt																							
Temp °C <i>1.2</i>		Initials <i>TJA</i>		Date <i>11/05/05</i>		Time <i>1145</i>		Therm. ID # <i>22-1</i>		Coolant Present <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No																					